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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ALANKO, ANITA KAREN

ART UNIT PAPER NUMBER

1765

DATE MAILED: 06/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/604,486

Applicant(s)

HAMANN ET AL.

Examiner

Anita K. Alanko

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 9-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/25/03, 8/14/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-8, drawn to an apparatus, classified in class 156, subclass 345.33.
- II. Claims 9-14, drawn to a method of altering a feature, classified in class 216, subclass 21.
- III. Claims 15-20, drawn to a method of exothermically etching, classified in class 216, subclass 58.

The inventions are distinct, each from the other because of the following reasons:

Inventions I, II and III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be used for a different method such as doping, cleaning, rinsing or depositing.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Steven Capella on May 20, 2005 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-8. Affirmation of this election must be made by applicant in replying to this Office action. Claims 9-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not provide a clear link between the structure of “means for maneuvering” in claim 1 and the corresponding function of “maneuvering” and therefore lacks proper antecedent basis for the §112, ¶6 limitation in claim 1 of “means for maneuvering said apex of said proe to a site proximate to a target feature to be altered”.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation of claim 1, “means for maneuvering” invokes the sixth paragraph of 35 USC 112 since it passes the three prong test.

Since the structure (corresponding to “means for maneuvering”) has not been clearly linked to the function (“for maneuvering”), the claim fails to particularly point out and distinctly claim the invention.

For the purposes of rejecting this claim over the prior art, since there is no clear link in the disclosure between structure and function, any element that performs the function of maneuvering is considered an equivalent.

Claims 2-8 fail to cure the indefiniteness of their base claim, and are therefore also rejected.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Yuasa et al (US 6,737,812 B2).

Yuasa discloses an apparatus adapted to alter a feature of a substrate, said apparatus comprising:

(a) a probe 20 having a plurality of channels 20a, 20b, 20c through said probe to exit at an apex of said probe (Fig. 2A, 2B),

(b) means 18 for maneuvering said apex of said probe to a site proximate to a target feature 14 to be altered (e.g., etched), and

(c) a source 22 of a first chemical (for example, a halide gas, col.3, lines 22-30) coupled to a first 20a said channel for delivery of said chemical through said apex, and

(d) either a source of a second chemical (for example, inert gas such as nitrogen or argon, col.4, lines 5-14) coupled to a second channel 20c for delivery through said apex or a source of suction 34 coupled to a second channel 20b for delivery through said apex.

As to claim 2, Yuasa discloses that the second chemical may comprise oxygen (col.4, lines 9-10), which is expected to be adapted to mix with said first chemical after exiting said apex to form a reactive species when valve 36 is closed. Further, the manner in which an apparatus operates is not germane to the issue of patentability of the apparatus itself. *Ex parte Wikdahl* 10 USPQ 2d 1546, 1548 (BPAI 1989); *Ex parte McCullough* 7 USPQ 2d 1889,1891 (BPAI 1988); *In re Finsterwalder* 168 USPQ 530 (CCPA 1971); *In re Casey* 152 USPQ 235, 238 (CCPA 1967).

As to claim 3, Yuasa discloses that the second chemical may comprise an inert gas (col.4, lines 5-6), which is expected to be adapted to dilute effluent from a reaction at said site to spatially confine an effect of said reaction when valve 36 is closed. Further, the manner in which an apparatus operates is not germane to the issue of patentability of the apparatus itself. *Ex parte Wikdahl* 10 USPQ 2d 1546, 1548 (BPAI 1989); *Ex parte McCullough* 7 USPQ 2d 1889,1891 (BPAI 1988); *In re Finsterwalder* 168 USPQ 530 (CCPA 1971); *In re Casey* 152 USPQ 235, 238 (CCPA 1967).

As to claims 4-6, Yuasa discloses that the second channel is coupled to a source of suction (vacuum pump 34) via suction pipeline 33, said suction being adapted to

remove hot effluent (residual gas generated at the time of etching, col.3, lines 49-50) from a reaction at said site to spatially confine an effect of said reaction.

As to claims 7-8, Yuasa discloses that the channels are arranged, as broadly interpreted, in parallel and concentrically to each other in said probe (col.3, lines 40-45, Fig.2A).

Claims 1, 4-7 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by JP 07-197997.

JP 07-197997 discloses an apparatus adapted to alter a feature of a substrate, said apparatus comprising:

- (e) a probe 4 having a plurality of channels (central channel and pipe 6) through said probe to exit at an apex of said probe,
- (f) means 8 for maneuvering said apex of said probe to a site proximate to a target feature 5a to be altered (etched [0013], [0015]), and
- (g) a source of a first chemical (CF₄ and O₂, [0015]) coupled to a first said channel (central channel) for delivery of said chemical through said apex, and
- (h) a source of suction (vacuum pump, [0012]) coupled to a second channel 6 for delivery through said apex.

As to claims 4-6, JP 07-197997 discloses that the second channel is coupled to a source of suction (vacuum pump [0012]) via suction pipeline 6, said suction being adapted to remove hot effluent ("it attracts the resultant generated during the etching", [0012]) from a reaction at said site to spatially confine an effect of said reaction.

As to claims 7-8, JP 07-197997 discloses that the channels are arranged parallel and concentric to each other in said probe (see figure).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art shows probes with channels for delivering chemicals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita K. Alanko whose telephone number is 571-272-1458. The examiner can normally be reached on Mon-Fri until 2:30 pm (Wed until 11:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Anita K Alanko
Primary Examiner

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